APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/532,977	03/22/2000	Ruben E. Fairman	13DV13386	8367

6111 7590 11/18/2003		EXAMINER
GENERAL ELECTRIC COMPANY		GARCIA OTERO, EDUARDO
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GE AIRCRAFT ENGINES	ART UNIT	PAPER NUMBER
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CINCINNATI, OH 452156301		

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/532,977	FAIRMAN, RUBEN E.
	Examiner	Art Unit
	Eduardo Garcia-Otero	2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*28 October 2003*</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

 4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

 a)☐ All b)☐ Some * c)☐ None of:

 1.☐ Certified copies of the priority documents have been received.

 2.☐ Certified copies of the priority documents have been received in Application No. _____.

 3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

 * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

 a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4)☐ Interview Summary (PTO-413) Paper No(s). _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: .

DETAILED ACTION: Non-Final Action

Introduction

1. Title is: METHODS AND SYSTEMS FOR GENERATING PROFILE CURVES OF SOLID MODELS.

2. First named inventor is: FAIRMAN.

3. Claims 1-20 have been submitted, examined, and rejected.

4. This action is in response to Applicant's Request for Reconsideration received 10/28/03.

5. The prior 35 USC 101 rejections are maintained, and new 35 USC 101 rejections are also presented.

6. The prior 35 USC 112 rejections are maintained, and new 35 USC 112 rejections are also presented.

7. This is the second action on the merits, and is non-final because new rejections are introduced that are not necessitated by IDS or amendment.

Index of Prior Art

8. **Solid Edge** refers to Solid Edge User's Guide Version 7, MU28900-ENG, Unigraphics Solutions ™, 1999, pages 2, and 30-51.

9. **Graham** refers to INSIDE Pro/ENGINEER Solutions, Gary Graham et al., Onworld Press, 1999, pages 76-80.

10. **Beaton** refers to US Patent 6,039,131.

Applicant's Remarks

11. **35 USC 101.** Applicant Remarks page 2-4. Applicant asserts that the claims are directed to practical applications "in the technological arts", citing the majority opinion from *In re Musgrave*, 431 F.2d 882 (C.C.P.A. 1970), 167 USPQ 280, 290-291 "All that is necessary, in our view, to make a sequence of operational steps a statutory "process" within 35 U.S.C. 101 is that it be in the technological arts to as to be in consonance with the Constitutional purpose to promote the progress of "useful arts." Const. Art. 1, sec 8." Applicant further asserts that claim 1 is a useful process because it is directed to "creating a two-dimensional representation of a revolved three-dimensional solid".

12. CONTEXT. In the Examiner's opinion, the Applicant is quoting *Musgrave* out of context, and misinterpreting the quotation. A detailed examination of the facts of *In re Musgrave*

leads to the conclusion that the 35 USC 101 rejection of the instant claim 1 is valid. *In re Musgrave* is an excellent case for analysis because one claim is allowed, and another claim is rejected.

13. Note that *In re Musgrave* is focused upon the issue of whether the mere presence of some "mental" steps (not physical) in a process renders said claim non-statutory per 35 USC 101. Specifically, the sentence immediately before Applicant's quotation states "We cannot agree with the board that these claims (all the steps of which can be carried out by the disclosed apparatus) are directed to non-statutory processes merely because some or all of the steps therein can also be carried out in or with the aid of the human mind or because it may be necessary for one performing the processes to think." Also see the Concurring Opinion Text by the Judge Baldwin, which interprets Applicant's quotation as discussing whether or not "mental" steps are statutory. Now let us consider the detailed facts of Musgrave.

14. MUSGRAVE ALLOWED (INCLUDED PHYSICAL STEP). *Musgrave* allowed a claim containing a physical step (step (1) of claim 2) which states "generating * * * seismic signals" at *In re Musgrave*, 431 F.2d 882 (C.C.P.A. 1970), 167 USPQ 280, 285. The court explains "we shall construe this term in the instant claims to mean the generation of a physical state in a physical body, the earth", at page 285. Also see "the physical steps of generating a succession of seismic waves and detecting such waves" at page 286.

15. MUSGRAVE REJECTED (NO PHYSICAL STEP). On the other hand, *Musgrave* rejected a claim lacking a statutory physical step (claim 60), stating "Claim 60 represents a method of processing data which starts with existing seismograms and generates signals therefrom which are processed as data though successive transformation none of which specify or require the use of apparatus or the employment of any physical acts on physical things. **This claim merely calls for a general mathematical or general graphical solution of an algorithm which appellant has propounded but which cannot be patented directly, as an algorithm or indirectly, as a series of conceptual steps in a method of solving the algorithm, under the statutes as they have been interpreted heretofore**" at page 286. Emphasis added. The rejected claim (claim 60) of *In re Musgrave* does not contain any physical step.

16. MUSGRAVE RULES. **To summarize, in the Examiner's interpretation, the rules of**
    ***Musgrave* are (1) the claim must contain at least one "physical" step, and (2) the claim**
    may contain some "mental" steps. This interpretation is consistent with *Alappat* discussed
    below.

17. IN RE ALAPPAT. Applicant discusses *In re Alappat* from MPEP 2106(II)(A), and cites
    MPEP 2106(I) discussing "technological arts". This quotation should be considered in the
    context of the cases discussed in MPEP 2106. Note that all of these cases require some
    "useful, concrete, and tangible result" to find statutory subject matter. For example, *State*
    Street has "a final share price momentarily fixed for recording and reporting purposes and
    even accepted and relied upon by regulatory authorities and in subsequent trades. *In re*
    Alappat has "anti-aliased pixel illumination intensity data to be displayed on a display". As
    discussed above, *Musgrave* has "generating * * * seismic signals" in the allowed claim (and,
    in contrast, the rejected claim "merely calls for general mathematical or general graphical
    solution of an algorithm"). These three cases *(State Street, Alappat, and Musgrave)* may be
    considered examples of the minimum that satisfies 35 USC 101.

18. Applicant asserts that the prior Office Action does not "expressly state" how the language of
    claims 1 and 7 support the 35 USC 101 rejection. The Examiner now repeats the relevant
    section of the prior office action: "the claims are directed towards manipulation of an abstract
    idea (creating geometric models), without producing "useful, concrete, and tangible" results
    as required by *In re Alappat*." Claims 1 and 7 do not have any "physical" step, using the
    terminology from *Musgrave*. The Examiner interprets all the language of claims 1 and 7 as
    "merely... general mathematical or general graphical solution of an algorithm", using the
    terminology from *Musgrave*.

19. Applicant asserts that claim 1 "creating a two-dimensional representation of a revolved three-
    dimensional solid" is a tangible result. The Examiner does not find this assertion persuasive,
    in view *Alappat*.

20. Regarding claim 7, Applicant asserts that the apparatus comprises "a processor programmed
    to generate a single equivalent profile curve", and asserts that said generation is "a useful
    process". Note that merely performing abstract manipulations on a computer does not
    necessarily make abstract manipulations statutory.

21. MPEP 2106(I)(B) states, in part:

> "determine what the programmed computer does when it performs the processes
> dictated by the software (i.e., the functionality of the programmed computer)
> (Arrhythmia, 958 F.2d at 1057, 22 USPQ at 1036, "It is of course true that a modern
> digital computer manipulates data, usually in binary form, by performing mathematical
> operations, such as addition, subtraction, multiplication, division, or bit shifting, on the
> data. But this is only how the computer does what it does. Of importance is the
> significance of the data and their manipulation in the real world, i.e., what the computer is
> doing.");

22. In the present claims, there is not adequate discussion of the significance of the data and their

manipulation in the real world, as required by *Arrhythmia*. The final result of claim 1

appears to be "a two dimensional representation", with no "useful, concrete, and tangible

result" as required by *Alappat*. (Also note *In re Sarker*, 200 USPQ 132, (CCPA), Dec. 7

1978 at page 137 regarding "post-solution activity". The present claim 1 does not have <u>any</u>

"post-solution activity")

23. Thus, the 35 USC 101 rejections of claims 1-13 are maintained. Additionally, claims 14-20

are rejected for the same reasons. Although claims 14-20 are implemented using computer

systems, there is no "useful, concrete, and tangible result" as required by *Alappat*.

24. **35 USC 112, FIRST PARAGRAPH, AND SECOND PARAGRAPH.** Applicant Remarks

page 4-8. Applicant asserts that claims 14-20 are enabled and defined, and that "the

specification, as originally filed, does adequately describe a server system... further

configured to generate a single equivalent curve...". Specifically, Applicant submits that the

Microsoft Dictionary definition for "server" may not necessarily apply to the claim term

"server system" as claimed in the present specification. However, Applicant fails to supply

an alternate clear definition of the claim term "server system".

25. Similarly, Applicant further asserts that the Microsoft Dictionary definition for

"configuration" may have little or nothing to do with the claim term **"configured to"**.

Again, Applicant fails to supply a clear alternate definition of the claim term "configured to".

26. Further, Applicant Remarks page 8 states "The reliance on the definitions of words not used

in the Claims has lead to an apparent misunderstanding of the Claims". Unfortunately, the

exact terms of claim 14 ("server system" and "configured to") are not present in the

Microsoft Computer Dictionary. However, fortunately, very similar terms ("server" and

"configuration") are present, and are used as a basis for interpretation in the views of one of ordinary skill in the art.

27. Definitions are frequently an essential portion of claim interpretation. See MPEP 2111. Also see *Texas Digital Sys., Inc. v. Telgenix, Inc.,* 308 F.3d 1193 (Fed. Cir. 2002), 64 USPQ2d 1812. The starting point is "plain meaning" to one of ordinary skill in the art, and the Microsoft Computer Dictionary appears like a reasonable starting point.

28. Applicant Remarks page 8-9 additionally request an examination of claims 14-20 based on the specification and "based on newly cited prior art". The Examiner declines this request, because the term "server system further configured to generate a single equivalent curve…" is too indefinite. Specifically, the Examiner should not rely "on what at best are speculative assumptions as to the meaning of the claims", and should not base "a rejection under 35 U.S.C. 103 thereon…[when] the claims do not particularly point out and distinctly claim the invention as required by 35 U.S.C. 112." In re Steele , 305 F.2d 859, 134 USPQ 292, 295 (CCPA 1962). Also see In re Citron, 45 CCPA 773, 251 F.2d 619, 116 USPQ 409. Note that the Applicant states that the present definitions have "lead to an apparent misunderstanding".

29. The Examiner will provide some guidance with respect to the portions that are not indefinite in claims 14-20. Regarding claim 14, the "client system" and "data storage device" portions of claim 14 appear to be mere "mechanical" or "automatic" application of the geometric algorithm discussed in claim 1, and which has been rejected against prior art. *In re Venner,* 262 F.2d 91, 95, 120 USPQ 192, 194 (CCPA 1958) states "it is well settled that it is not "invention" to broadly provide a mechanical or automatic means to replace manual activity which has accomplished the same result." Additionally, MPEP 2144.04(III) states "broadly providing an automatic or mechanical means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art."

30. Thus, aside from the term "system server further configured to generate", Claim 14 will stand or fall with claim 1 regarding prior art rejections. Similarly, claims 15-20 will stand or fall with their respective corresponding non-automated claims.

31. **Thus, any potential novelty or non-obviousness of claim 14 (beyond that of claim 1) would have to reside in "configured" portion of the claim term "server system**

configured to generate". It is for this reason that the Examiner requires exact definitions of the terms "server system" and "configured to".

32. **35 USC 102(a).** Remarks page 9-10. Applicant asserts that Solid Edge does not disclose the claim 1 limitations. The Examiner agrees that the Solid Edge terminology does not exactly match the claim 1 terminology.

33. However, if the Claim 1 terms are not disclosed by the Solid Edge terms, then it is not clear what the claim 1 terms mean. New 35 USC 112 rejections are presented below for claim 1. The 35 USC 102(a) rejection of claim 1 is maintained, for the present.

34. Additionally, drawings are required to illustrate claim 1. See below.

Drawings-additional drawings required

35. "The applicant shall furnish a drawing where necessary for the understanding of the subject matter to be patented" 35 USC 113. Applicant is required to furnish a drawing under 37 CFR 1.81. No new matter may be introduced in the required drawing.

36. Specifically, the Examiner requires two drawings (or sets of drawings). The first drawing should illustrate the prior art "known profile curve generators" discussed at specification page 1 line 17 to page 2 line 5, and should be labeled "prior art".

37. The second drawing should disclose the claim 1 terms ("revolved face", "single equivalent profile curve") based on the discussion at specification page 2 line 7-23, and specification page 3 line 18 et. seq. Also, the claim 2 term "seed revolved edge" should be disclosed.

38. These drawings may resolve many of the 35 USC 112 issues, and may overcome the 35 USC 102(a) rejections.

35 USC § 101-statutory subject matter

39. 35 U.S.C. 101 reads as follows: Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

40. **Claims 1-20 are rejected under 35 U.S.C. 101** because the claimed invention is directed to non-statutory subject matter. Specifically, the claims are directed towards manipulation of an abstract idea (creating geometric models), without producing "useful, concrete, and tangible" results as required by *In re Alappat.*

41. An additional limitation in the independent claims using the created model for a "useful,

    concrete, and tangible" purpose would satisfy the requirements of 35 USC 101.

42. See MPEP(II)(A), particularly the section reproduced below:

> Although the courts have yet to define the terms useful, concrete, and tangible in the
> context of the practical application requirement for purposes of these guidelines, the
> following examples illustrate claimed inventions that have a practical application because
> they produce useful, concrete, and tangible result:
> Claims drawn to a long-distance telephone billing process containing mathematical
> algorithms were held to be directed to patentable subject matter because "the claimed
> process applies the Boolean principle to produce a useful, concrete, tangible result
> without pre-empting other uses of the mathematical principle." AT &T Corp. v. Excel
> Communications, Inc., 172 F.3d 1352, 1358, 50 USPQ2d 1447, 1452 (Fed. Cir.
> 1999);
> "[T]ransformation of data, representing discrete dollar amounts, by a machine through a
> series of mathematical calculations into a final share price, constitutes a practical
> application of a mathematical algorithm, formula, or calculation, because it produces a
> useful, concrete and tangible result' -- a final share price momentarily fixed for recording
> and reporting purposes and even accepted and relied upon by regulatory authorities and in
> subsequent trades." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601; and
> Claims drawn to a rasterizer for converting discrete waveform data samples into anti-
> aliased pixel illumination intensity data to be displayed on a display means were held to
> be directed to patentable subject matter since the claims defined "a specific machine to
> produce a useful, concrete, and tangible result." In re Alappat, 33 F.3d 1526, 1544,
> 31 USPQ2d 1545, 1557 (Fed. Cir. 1994).
> A process that consists solely of the manipulation of an abstract idea is not concrete or
> tangible. See In re Warmerdam, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed.
> Cir. 1994). See also Schrader, 22 F.3d at 295, 30 USPQ2d at 1459. Office personnel
> have the burden to establish a prima facie case that the claimed invention as a whole is
> directed to solely an abstract idea or to manipulation of abstract ideas or does not
> produce a useful result. Only when the claim is devoid of any limitation to a practical
> application in the technological arts should it be rejected under 35 U.S.C. 101. Compare
> Musgrave, 431 F.2d at 893, 167 USPQ at 289; In re Foster, 438 F.2d 1011, 1013, 169
> USPQ 99, 101 (CCPA 1971). Further, when such a rejection is made, Office personnel
> must expressly state how the language of the claims has been interpreted to support the
> rejection.

35 USC § 112- first paragraph- description

43. The following is a quotation of the first paragraph of 35 U.S.C. 112: The specification shall

    contain a written description of the invention, and of the manner and process of making and using it, in such

    full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which

    it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the

    inventor of carrying out his invention.

44. **Claim 1-20 rejected under 35 U.S.C. 112, first paragraph**, as containing subject matter

    which was not described in the disclosure in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

45. Claim 1 states **"single equivalent profile curve for each revolved face"**. The terms "single equivalent profile curve" and "revolved face" are not described in the disclosure in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is some discussion at specification page 2 line 7-23, and specification page 3 line 18 et. seq., but it is not clear. Claims 2-20 are rejected for the same reason as claim 1.

46. Claim 14 states **"server system further configured to generate a single equivalent curve for each revolved face of the three-dimensional solid in a two-dimensional plane"**. Note that "system" is interpreted as a "machine" according to the statutory categories listed in 35 USC 101, and note that the "data storage device" is part of this machine.

47. The Specification FIG 1 element 12 states "SERVER SYSTEM", but does not adequately describe "configured to generate a single equivalent curve". Note that **"server"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "... a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the network". Further note that **"configuration"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "In relation to networks, the entire interconnected set of hardware, or the way in which a network is laid out—the manner in which elements are connected". Thus, configuration is related to the set of hardware, and apparently has little or nothing to do with generating "a single equivalent curve..." as claimed.

48. Claims 15-20 depend from claim 14, and are rejected for the same reasons as claim 14.

35 USC § 112- first paragraph- enablement

49. The following is a quotation of the first paragraph of 35 U.S.C. 112: The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

50. **Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph,** as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

51. Claim 1 states **"single equivalent profile curve for each revolved face".** The terms "single equivalent profile curve" and "revolved face" are not described in the in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is some discussion at specification page 2 line 7-23, and specification page 3 line 18 et. seq., but it is not clear. Claims 2-20 are rejected for the same reason as claim 1.

52. Claim 14 states **"server system further configured to generate a single equivalent curve for each revolved face of the three-dimensional solid in a two-dimensional plane".** Note that "system" is interpreted as a "machine" according to the statutory categories listed in 35 USC 101, and note that the "data storage device" is part of this machine.

53. The Specification FIG 1 element 12 states "SERVER SYSTEM", but does not adequately describe "configured to generate a single equivalent curve". Note that **"server"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "... a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the network". Further note that **"configuration"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "In relation to networks, the entire interconnected set of hardware, or the way in which a network is laid out—the manner in which elements are connected". Thus, configuration is related to the set of hardware, and apparently has little or nothing to do with generating "a single equivalent curve..." as claimed.

54. Claims 15-20 depend from claim 14, and are rejected for the same reasons as claim 14.

35 USC § 112-Second Paragraph-indefinite claims

55. The following is a quotation of the second paragraph of 35 U.S.C. 112: The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

56. **Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite** for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

57. Claim 1 states **"single equivalent profile curve for each revolved face".** The terms "single equivalent profile curve" and "revolved face" are not claimed in such a way to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is some discussion of these terms at specification page 2 line 7-23, and specification page 3 line 18 et. seq., but it is not clear. Claims 2-20 are rejected for the same reason as claim 1.

58. Claim 14 states **"server system further configured to generate a single equivalent curve for each revolved face of the three-dimensional solid in a two-dimensional plane".** Note that "system" is interpreted as a "machine" according to the statutory categories listed in 35 USC 101, and note that the "data storage device" is part of this machine.

59. The Specification FIG 1 element 12 states "SERVER SYSTEM", but does not adequately describe "configured to generate a single equivalent curve". Note that **"server"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "... a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the network". Further note that **"configuration"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "In relation to networks, the entire interconnected set of hardware, or the way in which a network is laid out—the manner in which elements are connected". Thus, configuration is related to the set of hardware, and apparently has little or nothing to do with generating "a single equivalent curve..." as claimed.

60. Claims 15-20 depend from claim 14, and are rejected for the same reasons as claim 14.

No Prior Art Examination - Indefinite Claims - In re Steele

61. **Claims 14-20 are so indefinite that no prior art examination is feasible.** Specifically, the Examiner should not rely "on what at best are speculative assumptions as to the meaning of the claims", and should not base "a rejection under 35 U.S.C. 103 thereon...[when] the claims do not particularly point out and distinctly claim the invention as required by 35

U.S.C. 112." In re Steele , 305 F.2d 859, 134 USPQ 292, 295 (CCPA 1962). Also see In re Citron, 45 CCPA 773, 251 F.2d 619, 116 USPQ 409.

62. Note that Claims 14-20 have been rejected under 35 USC 112 First Paragraph for written description, and 35 USC 112 First Paragraph for lack of enablement, and further rejected under 35 USC 112 Second Paragraph for indefinite claims. The Examiner believes that it would be counter-productive to make speculative assumptions for the purpose of examination against prior art. These claims will be examined against prior art only after such an examination becomes feasible.

Claim Rejections - 35 USC § 102(a)

63. The following is a quotation of 35 U.S.C. 102(a) which forms the basis for the rejections under this section in this Office action: (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

64. Claims 1-13 are rejected under 35 U.S.C. 102(a).

65. Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

66. Claim 1 is an independent "method" claim with 2 limitations.

67. **"selecting the three-dimensional solid for which the associative two-dimensional section is to be generated"** is disclosed by Solid Works at page 40 "base feature using the Revolved Protrusion". Note that the Solid Edge user/designer is inherently beginning with a three-dimensional design on paper or in the designer's head, then using Solid Edge to draw a profile, then using Solid Edge to rotate the profile and generate a portion of a CAD (or digital) three-dimensional solid.

68. **"generating a single equivalent profile curve for each revolved face of the three-dimensional solid in a two-dimensional plane"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution." Note that the Solid Edge user/designer is inherently beginning with a three-dimensional design on paper or in the designer's head, then using Solid Edge to draw a profile, then using Solid Edge to rotate the profile and generate a portion of a CAD (or digital) three-dimensional solid.

69. Claim 2 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

70. Claim 2 depends from claim 1, with 2 additional limitations.

71. **"identifying a seed revolved edge on the three-dimensional solid selected"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution."

72. **"querying the three-dimensional solid for revolved faces adjacent to the seed revolved edge"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

73. <u>Claim 3 is rejected</u> under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

74. Claim 3 depends from claim 2, with 2 additional limitation.

75. **"creating a trace list including each face identified and traversed while querying the three-dimensional solid"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

76. **"querying the solid with a loop-wise sequence to generate a contiguous path of profile curves"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

77. <u>Claim 4 is rejected</u> under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

78. Claim 4 depends from claim 3, with 1 additional limitation.

79. **"the three-dimensional solid includes one of a torodial (sic) and spherical face, said step of generating a single equivalent profile curve further comprising the step of creating an arc as an equivalent curve"** is disclosed by Solid Works at page 43 "you can define up to three path curves" and page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

80. Note that "torodial" is interpreted as "toroidal". And a toroid is defined as "a surface generated by a plane closed curve rotated about a line that lies in the same plane as the curve but does not intersect it" by Merriam Webster's Collegiate Dictionary, Tenth Edition. Thus, the surface of a doughnut is a toroid.

81. <u>Claim 5 is rejected</u> under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

82. Claim 5 depends from claim 4, with 2 additional limitations.

83. **"the three-dimensional solid includes one of a conical, planar, or cylindrical face"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also

must define an axis of revolution." and at page 36 "Lines are extended linearly (A); arcs are extended radially (B)".

84. **"said step of generating a single equivalent profile curve further comprising the step of creating a line as an equivalent profile curve"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution." and at page 36 "Lines are extended linearly (A); arcs are extended radially (B)".

85. Claim 6 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

86. Claim 6 depends from claim 5, with 1 additional limitation.

87. **"the three-dimensional solid includes a revolved-spline face"** is disclosed by is disclosed by Solid Works at page 43 "you can define up to three path curves".

88. Note that "spline" is defined as "a function that is defined on an interval, is used to approximate a given function, and is composed of pieces of simple functions defined on subintervals and joined at their endpoints with a suitable degree of smoothness" by Merriam Webster's Collegiate Dictionary, Tenth Edition.

89. **"said step of generating a single equivalent profile curve further comprising the step of creating a line as an equivalent profile curve"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution." and at page 36 "Lines are extended linearly (A); arcs are extended radially (B)".

90. Claim 7 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

91. Claim 7 is an independent "apparatus" claim, with 1 limitation.

92. **"apparatus comprising a processor programmed to generate a single equivalent profile curve for each revolved face in a two dimensional plane"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution" and page 2 "Solid Edge is a computer-aided design CAD) system".

93. Claim 8 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

94. Claim 8 depends from claim 7, with 1 additional limitation.

95. **"said processor further programmed to generate the two-dimensional representation without intersection lines within the three-dimensional solid"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution" and page 2 "Solid Edge is a computer-aided design CAD) system".

96. <u>Claim 9 is rejected</u> under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

97. Claim 9 depends from claim 8, with 1 additional limitation.

98. **"said processor further programmed to follow a loop-wise sequence to create a contiguous path of profile curves"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution" and page 2 "Solid Edge is a computer-aided design CAD) system".

99. <u>Claim 10 is rejected</u> under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

100.   Claim 10 depends from claim 9, with 1 additional limitation.

101.   **"identify a seed revolved edge bordering a face"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution."

102.   **"querying the three-dimensional solid from the revolved edge to each adjacent face to circumscribe the three dimensional solid"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

103.   <u>Claim 11 is rejected</u> under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

104.   Claim 11 depends from claim 10, with 1 additional limitation.

105.   **"the three-dimensional solid includes one of a torodial (sic) and spherical face, said processor further programmed to generate an arc"** is disclosed by Solid Works at page 43 "you can define up to three path curves", and page 36 "arcs", and page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

106.   Note that "torodial" is interpreted as "toroidal". And a toroid is defined as "a surface generated by a plane closed curve rotated about a line that lies in the same plane as the curve but does not intersect it" by Merriam Webster's Collegiate Dictionary, Tenth Edition. Thus, the surface of a doughnut is a simple toroid.

107.   <u>Claim 12 is rejected</u> under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

108.   Claim 12 depends from claim 10, with 1 additional limitation.

109.   **"the three dimensional solid includes one of a conical, planar, and cylindrical face, said processor further programmed to generate a line"** is disclosed by Solid Works at page 43 "you can define up to three path curves", and page 36 "Lines", and page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

110.   Claim 13 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

111.   Claim 13 depends from claim 10, with 1 additional limitation.

112.   **"the three dimensional solid includes a revolved-spline face, said processor further programmed to generate a spline"** is disclosed by is disclosed by Solid Works at page 43 "you can define up to three path curves".

113.   Note that "spline" is defined as "a function that is defined on an interval, is used to approximate a given function, and is composed of pieces of simple functions defined on subintervals and joined at their endpoints with a suitable degree of smoothness" by Merriam Webster's Collegiate Dictionary, Tenth Edition.

Potential Allowable Subject Matter

114.   It is possible that the present application may contain allowable material. However, several hurdles must be overcome:

115.   First, the Examiner requires additional drawings illustrating the prior art, and distinguishing the claimed invention.

116.   Second, all claims stand rejected under 35 USC 101. The Applicant may overcome these rejections by incorporating an additional limitation that is "useful, concrete, and tangible" as required by *Alappat*. The specification page 1 lines 4 to 16 may prove adequate disclosure for such an additional limitation, particularly page 1 lines 12-13. Also note *In re Sarker*, 200 USPQ 132, (CCPA), Dec. 7 1978 at page 137 regarding "post-solution activity". The present claim 1 does not have any "post-solution activity".

117.   Third, in view of the additional drawings, the Applicant must overcome the multiple 35 USC 112 rejections. Clear additional drawings will go a long way towards overcoming most of the 35 USC 112 rejections, except the "configured" term of claim 14.

118.   Fourth, if the Applicant overcomes the above three hurdles, then overcoming the 35 USC 102(a) rejections might not be difficult, because the claimed invention will be clearly distinguished from the prior art.

119.   This office action is non-final because new rejections are introduced not necessitated by amendment or IDS.
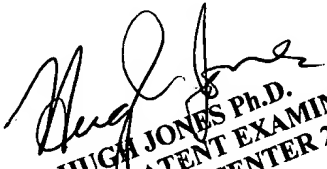
Additional Cited Prior Art

120.   The following US patents or publications are hereby cited as prior art, but have not been used for rejection. Applicant should review these carefully before responding to this office action.

121.   US Patent 6,039,131, by Timothy P. Beaton, states "FIG. 4, a simplified single revolved profile 60" at column 5 line 26.

Communication

122.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Garcia-Otero whose telephone number is 703-305-0857. The examiner can normally be reached on Thursday through Friday from 9:00 AM to 8:00 PM. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska, can be reached at (703) 305-9704. The fax phone number for this group is 703-872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (703) 305-3900.

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